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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,617	02/28/2002	Kun-Tsan Wu		1920

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EXAMINER	
PAK, SUNG H	
ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/086,617	WU ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sung H. Pak	2874	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☒ Claim(s) 1-8 is/are allowed.  
 6) ☒ Claim(s) 9,10 and 12-17 is/are rejected.  
 7) ☒ Claim(s) 11 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Applicants' amendment filed 11/10/2003 has been entered. All pending claims have been carefully reconsidered in view of the amended claims, however the application is still not in condition for allowance. In response to the newly amended limitations, a new ground of rejection is furnished in this office action.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 9-10, 12, 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsai (US 5,436,986).

Tsai reference discloses an optical device with all the limitations set forth in the claims, including: at least two input optical fibers (Fig. 10); at least two output optical fibers (Fig. 10); at least two main reflecting surface, each main reflecting surface being in an optical path between one of the input fibers and one of the output fibers ("224", "220" in Fig. 10); at least two secondary reflecting surfaces ("222", "226" in Fig. 10), each secondary reflecting surface being parallel to the one of the main reflecting surfaces to connect an optical path from one of the input optical fibers to one of the output fibers, wherein each of the input optical fibers is coupled to a different one of the output optical fibers when the optical switch changes between at least two positions

(Fig. 10, Fig. 11); wherein the light beams from the input fiber are reflected twice off the main reflecting surface (Fig. 12)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai (US 5,436,986).

Tsai reference discloses an optical device with all the limitations set forth in the claims as discussed above, except it does not teach the use of three input/output port pairs. Although Tsai reference only describes two input/output port pairs, the use of three input/output port pairs in an optical switching device is well known in the art. Increasing the number of input/output port pairs is advantageous and desirable because it allows for increased number of optical communications channels and increases optical transmission bandwidth. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tsai device to have three input/output port pairs.

***Allowable Subject Matter***

Claims 1-4 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The claims are allowed for reasons discussed in the previous office action.

Claims 5-8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: an optical switch comprising, inter alia, plurality of input and output fibers and four reflectors is known in the art as previously discussed. However, none of the prior art fairly teaches or suggests such an optical switch wherein the four reflectors are parallel to each other, wherein a switching element is movable between three different positions, and the light signal from each of the input fibers are transmitted to each of the different output fibers when the switching element is at three different positions. Wang et al reference (US 2002/0114559) discloses a similar optical switching device, but at certain switching positions the light signal from certain input fibers are blocked by the switching element instead of being transmitted to the output fibers.

Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: An optical switch comprising, inter alia, two main reflectors and two secondary reflectors parallel to the main reflectors, wherein the transmitted light beams from the input fiber reflects once off the main reflector, then once off the secondary reflector,

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then reflect second time off of the main reflector, and then are output by the output fiber, *as claimed in the instant application* has not been shown in any prior art.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday - Thursday : 6:30am-5:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Sung H. Pak  
Examiner  
Art Unit 2874



HEMANG SANGHAVI  
PRIMARY EXAMINER